

SHILOVSKAYA, OLYA, uchenitsa 4-go klassa

On a tortoise and a guinea pig. Nauka i zhizn' 28 no.11:109  
N '61. (MIRA 14:12)

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(Animals, Habits and behavior of)

UDALOV, V.V., inzh., SINTsov, A.M., kand.tekhn.nauk; SHILOVSKIY, A.A., inzh.

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BALIBERDIN, Leontij Leontjewic; TABACOV, Anatolij Anatoljewic;  
TINISOV, Arsen Mijajlovič; CHMISCHIK, Aleksandr  
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[Use of non-regulated semiconductors rectifiers in industry]  
(Use of non-regulated semiconductors rectifiers in industry)  
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poluprovodnikowe wyczynienia i przemysłowe  
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SHILOVSKIY, I.A., inzhener.

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SELOVSKIY, I.A., inshener.

Heat insulation and cooling attics as countermeasures to condensation  
and ice layers on roofs. Gor.khoz.Moak,28 no.2:27-30 F '54. (MLRA 7:5)  
(Insulation (Heat)) (Attics--Ventilation)

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(Fergana--Petrology)

AND VENKATARAMAN, M. A. (1971) -- "INVESTIGATION OF THE INFLUENCE OF PARTITION SIZE ON THE POLYMERIZATION OF VINYL CHLORIDE IN AQUEOUS SUSPENSION." BY J. VENKATARAMAN, K. S. S. RAO AND D. N. BANERJEE. DEPARTMENT OF POLYMER ENGINEERING, MURUGESWARAN COLLEGE OF ENGINEERING, TIRUCHIRAPPALAYAM, TAMIL NADU, INDIA.

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CIA-RDP86-00513R001549510004-2"

VICHIREVIN, A.Ye.; GULEV, Ya.F.; DACHUK, L.Ya.; DROBINSKIY, V.A.; KRYLOV,  
S.K.; SHADUR, L.A.; SHILOVSKIY, V.A.; CHERNYSHEV, V.I., redaktor;  
VERINA, G.P., tekhnicheskiy redaktor

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DOBROSEL'SKIY, Konstantin Mikhaylovich, kandidat tekhnicheskikh nauk;  
NIKOLAEV, Ivan Ivanovich, doktor tekhnicheskikh nauk; CHERNYSHOV,  
Mikhail Andreyevich, kandidat tekhnicheskikh nauk; SHILLOVSKIY,  
Viktor Anatol'yevich, kandidat tekhnicheskikh nauk; NIKOLAEV, I.I.,  
professor, redaktor; PEYSAKHZON, B.E., kandidat tekhnicheskikh nauk,  
redaktor; VERINA, G.P., tekhnicheskiy redaktor

[A general railroad course] Obshchii kurs zheleznykh dorog. Pod  
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PONOMARENKO, Panteleymon Kondrat'yevich; RAKOV, Vitaliy Aleksandrovich;  
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nauk; CHESNOKOV, A.S.; SHILOVTSEV, D.P.; GAY, A.F., kand.  
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AMINEV, A.M., prof.; BEREZOV, Ye.L., prof.; BISENKOV, N.P., kand. med. nauk; BRAYTSEV, V.R., prof.; DEYNEKA, I.Ya., prof.; DYSKIN, Ye.A., kand. med. nauk KAZANSKIY, V.I., prof.; KARAVANOV, G.G., prof.; LEVIN, M.M., prof.; MAKSIMENKOV, A.N., prof.; MAYAT, V.S., prof.; NAPALKOV, P.N., prof.; ROZANOV, B.S., prof.; RUSANOV, A.A., prof.; RUSANOV, G.A., kand. med. nauk; FILATOV, A.I., prof.; CHUKHRIYENKO, D.P., prof.; SHILOVYTSEV, S.P., prof.; PETROVSKIY, B.V., prof., otv. red.; MEL'NIKOV, A.V., prof., red. toma; SUVOROVA, T.A., dots., red.; MIROTVORTSEVA, K.S., red.; RULEVA, M.S., tekhn. red.

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Kuybyshevskogo meditsinskogo instituta.  
(PANCREAS—TUMORS) (CYSTS)

SHILOVTSOV, S.P., prof.; BESPALOV, G.S., doktor med. nauk; SHILOVTSOVA, A.S.,  
kand. med. nauk; SHKOL'NIKOVA, S.A.; KRICHESKIY, A.L.

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SHILOVTSEV, S.P., prof.; SHILOVTSEVA, A.S., kand. med. nauk; SHKOL'NIKOVA,  
S.A.; KRICHESKIY, A.L., aspirant

Prophylactic and therapeutic action of magnesium and calcium  
salts and bromides on malignant tumors. Trudy Kuib. med. inst.  
24:11-31 '63  
(MIRA 17:4)

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nauki prof. S.P. Shilovtsev) Kuybyshevskogo meditsinskogo insti-  
tuta.

SHILOVTSEV, S.P. prof., zasluzhennyy deyatel' nauki RSFSR

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(NEOPLASMS, exper.)

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(CALCIUM, eff.  
calcium salts, prev. & control of neoplasm growth)

(MAGNESIUM, eff.  
magnesium salts, prev. & control of neoplasm growth)

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bromine salts, prev. & control of neoplasm growth)

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SHILOVTSEVA, A. S., kand. med. nauk

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Lukov[deceased]) Kuybyshevskogo meditsinskogo instituta.

(MEDIASTINUM—DISEASES)

SHILOVTSOV, S.P., prof.; BEZPALOV, G.S., doktor med. nauk; SHILOVTSOV, A.S.,  
kand. med. nauk; SHOLUDIKOV, S.A.; KRICHENJSKIJ, F.I.

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and of bromides in malignant tumors. Vest. khir. no.12:14-22 '62.  
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Kuybyshevskogo meditsinskogo instituta. Adres avtorov: Kuybyshev,  
meditsinskiy institut, klinika obshchey khirurgii.

SHILOVTSEV, S.P., prof.; SHILOVTSEVA, A.S., kand. med. nauk; SHKOL'NIKOVA,  
S.A.; KRICHESKII, A.L., aspirant

Prophylactic and therapeutic action of magnesium and calcium  
salts and bromides on malignant tumors. Trudy Kuib. med. inst.  
24:11-31 '63 (MIRA 17:4)

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SHILOVTSEVA, A.S.

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Soldatov) Kuybyshevskogo meditsinskogo instituta.  
(LUNGS — COLLAPSE) (TONSILS — SURGERY)

SHILOVSEVA, A.S., kand. med. nauk

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course of papillomas; an experimental and clinical study.  
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NIKOLAYCHIK, N.; SHILOVTSIEVA, L.

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SHILOVSEVA, L.M., redaktor; MAL'KOVA, I.V., tekhnicheskij redak-  
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(Motorbuses)

(MIRA 8:7)

KREMENETS, I.L.[bryhinet], N.L., kand. sel'khoz. nauk, glav. red.; BILOUS, I.F., kand. ist. nauk, zam. glav. red.; MARISOVA, I.V.[Marisova, I.V.], kand. biol. nauk. dots.., red.; SVINKO, Y.M.[Svynko, I.M.], red.; TATARINOV, K.A. [Tatarynov, K.A.], kand. biol. nauk, dots., red.; SHEMANSKAYA, V.O.[Shemanskaya, V.O.], rei.

[Materials on the study of the natural resources of Podolia] Materialy do vyzchennia pryrodnykh resursiv Podillia. Kremenets', Kremenets'kyi derzhavnyi pedagog. in-t, 1963. 199 p. (MIRA 17:7)

1. Mizhvuzivs'ka konferentsiya po vyzchennyu pryrodnykh resursiv podillya. 1963. 2. Kremenets'kyi pedagogicheskiy institut (for Tatarinov, Marisova).

SHILOVTSEVA, L. S.

USSR/ Chemistry

Card 1/1 Pub. 22 - 31/62

Authors : Nesmeyanov, A. N., Academician; Perevalova, E. G.; Golovnya, R. V.; and  
Title : Shilovtseva, L. S.  
~~About arynferrocenes and ferrocenylamine~~

Periodical : Dok. AN SSSR 102/3, 535-538, May 21, 1955

Abstract : Using various diazo-compounds the authors synthesized m-nitrophenylferrocene and p-ferrocenylphenol and then utilized the m-nitrophenylphenylferrocene and a previously described p-isomer for the synthesis of m and p-ferrocenylanilines. The ferrocenylamine was established to be an orange colored crystalline substance well soluble in organic solvent and when distilled in vacuo it offers acetylene and benzoyl derivatives. Ferrocenylamine chloride is soluble in water but not in hydrochloric acid. Four references: 3 USSR and 1 USA (1941-1955). Graphs.

Institution : The M. V. Lomonosov State Univ., Moscow

Submitted : March 22, 1955

SCV/20-121-1-32/55

AUTHORS: Nasarjanov, A. N., Perevalova, E. G., Sil'covskaya, L. S.,  
Beynoravichite, I. A.

TITLE: The Synthesis of Methyl Ferrocene (Sintez metilferrotsena)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 1, pp. 117-118  
(JSSR)

ABSTRACT: In recent time various mono- and dialkyl ferrocenes were described which were produced by means of a direct alkylation of ferrocene in the presence of aluminum chloride (Refs 1-4) or by reduction of the corresponding ketones (Ref 5) or acids (Ref 6). In the present paper the authors achieved the synthesis mentioned in the title by two ways: a) by reduction of methyl ether of ferrocene carbonic acid (yield 83%) by means of lithium alumohydrate and b) by reduction of the iodine methylate of the N,N-dimethyl-amino-methyl-ferrocene (Refs 7,8) by means of sodium amalgam (yield 94%). In the latter case a small quantity of mono-ferrocenyl carbinol ether ( $C_5H_5FeC_5H_4CH_2)_2O$  is produced. In an experimental part the reactions a) and b) are described. The infrared and ultraviolet

Card 1/2

The Synthesis of Methyl Ferrocene

SOV/20-121-1-32/55

spectra of the methyl ferrocene which was produced according to the reactions a) and b ) are correspondingly identical. They were taken in the laboratoriya molekulyarnoy spektroskopii kafedry organicheskoy khimii (Laboratory of Molecular Spectroscopy of the Faculty of Organic Chemistry of the Moscow State University). In a paper on ferrocene alkylation (Ref 2) methyl ferrocene with a melting point of 118 - 119° was described. The produced product has a melting temperature of 35,5 - 36,5°. These last data are undoubted. The reasons for the mentioned divergence are explained later. There are 9 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 12, 1958

1. Methyl ferrocene--Synthesis    2. Methyl ethers--Reduction  
3. Lithium aluminum hydrates--Chemical reactions    4. Methyl iodide--Reduction    5. Sodium--Chemical reactions

Card 2/2

5(3)

AUTHORS:

Nesmeyanov, A. N., Perevalova, E. G.,  
Shilovtseva, L. S., Ustynyuk, Yu. A.

SOV/20-124-2-25/71

TITLE:

Synthesis of Ferrocene Derivatives by Means of the  
N,N-Dimethyl-Aminomethyl Ferrocene Methiodide (Sintez  
proizvodnykh ferrotsena s pomoshch'yu yodmetilata  
N,N-dimetilaminometilferrotsena)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 2, pp 331-334  
(USSR)

ABSTRACT:

The compound last mentioned in the title was earlier used by the authors (Ref 5) for the synthesis of methyl ferrocene. It proved to be a suitable reagent for the introduction of the ferrocenyl-methyl group (Refs 2-8). In the present paper some substitution reactions of the dimethyl-amino group were carried out, furthermore *methyl-ferrocene* was aminomethylated and ferrocene aminoethylated. It was thus possible to obtain the sodium salt of ferrocenyl-methane sulfonic acid by the interaction between the compound mentioned in the title and sodium sulfite. By the influence of potassium thiocyanate ferrocenyl-methyl thiocyanate was formed. Sodium phenolate and  $\beta$ -naphtholate yielded the phenyl- and  $\beta$ -naphthyl ether of the ferrocene carbinol.

Card 1/3

Synthesis of Ferrocene Derivatives  
by Means of the N,N-Dimethyl-Aminomethyl Ferrocene Methiodide

SOV/20-124-2-25/71

By ferrocenyl methylation of the p-oxy-azo benzene an azo compound was formed containing a ferrocenyl group. This had hitherto not been possible. On the aminomethylation of the methyl ferrocene (Ref 5) with a mixture of N,N,N<sup>1</sup>,N<sup>1</sup>-tetramethyl-diamino methane and paraform a homoannular (N,N, dimethyl-amino methyl) methyl ferrocene was obtained in a 60% yield. The aminomethylation of the methyl ferrocene was carried out in the substituted cyclopentadiene ring in a yield which was somewhat higher than for ferrocene (51%, Ref 2). The addition of phosphoric acid increased the yield up to 80%. Besides, diaminomethylated methyl ferrocene is formed (10% yield). Thus the methyl group in the methyl ferrocene considerably activates the ferrocene nucleus against electrophilic attacks. The formation of the homoannular compound suggests that the ring to which the methyl group is bound, is activated to a more considerable degree. The successful production of the diaminomethylated methyl ferrocene further proves that the influence exerted by the substituents is transferred from one cyclopentadienyl ring to the other one by means of the iron atom (Ref 9). From the compound mentioned in the title the authors

Card 2/3

Synthesis of Ferrocene Derivatives  
by Means of the N,N-Dimethyl-Aminomethyl Ferrocene Methiodide

SOV/20-124-2-25/71

synthesized the homoannular dimethyl ferrocene. It may be assumed from the comparison of infrared spectra that the alkyl groups are in a 1,3-position. There are 12 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: October 14, 1958

Card 3/3

NESMEYANOV, A.N.; PEREVALOVA, E.G.; SHILOVSEVA, L.S.

Reactions between organomagnesium compounds and (Ferrocenylmethyl) trialkylammonium salts. Izv.AN SSSR.Otd.khim.nauk no.11:1982-1985  
N '61.  
(MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.  
(Magnesium organic compounds) (Ammonium compounds)

25856  
8/020/61:39/004/016/025  
B 103/B206

53750

AUTHORS:

Nesmeyanov, A. N., Academician, Fe.avalova, E. G., Gubin, S.  
P., Mikitina, T. V., Ponomarenko, A. A., and Shilovtseva,  
L. S.

TITLE:

Properties of phenyl ferrocene

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 4, 1961, 888-891

TEXT: The authors investigated: 1) the amino methylation, 2) sulfonation, 3) concurrent (with ferrocene) acetylation, and 4) nitration of phenyl ferrocene. They established that the alkyl group, if linked with the ferrocene ring, facilitates the subsequent electrophilic substitution. In this case, the cyclopentadienyl ring to which the alkyl group is bonded, is more strongly activated. In relation to the ferrocenyl group, the phenyl group is an electron-acceptor group (A. N. Nesmeyanov et al. Ref. 5; DAN, 103, 81 (1955)). These data by the authors were confirmed by M. Rosenblum (J. Am. Chem. Soc., 81, 4530 (1959)): The electrophilic substitution of the hydrogen atoms in the ferrocene ring is deactivated by the phenyl group. 1) Amino methylation. To a mixture of 70 ml of glacial

Card 1/6

## Properties of phenyl ferrocene

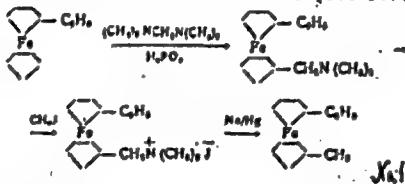
25856  
S/020/61/139/004/016/025  
B103/B206

acetic acid and 4 g of  $H_3PO_4$ , cooled to 10°C, 2.25 g (0.019 mole) of tetramethyldiaminocethane is gradually added, and then 4 g (0.015 mole) of phenyl ferrocene. The reaction mass was stirred for 1 hr at room temperature and for 10 hr at 110 - 115°C in a nitrogen current and subsequently diluted with water to the double amount. The ferrocene (1.5 g) which had not entered into reaction was extracted with benzene. 40% NaOH solution was added to the acidic solution, and the formed (*N*, *N*-dimethylaminomethyl)-phenyl ferrocene was extracted with ether. After distilling off the ether, 2.6 g of the above-mentioned compound was obtained as a viscous, dark, reddish-brown oil. The yield amounted to 54% of the theoretical one (related to phenyl ferrocene) and to 96% of the phenyl ferrocene reacted. The final product was distilled in vacuo. Its boiling point was 150-160°C/3 mm Hg;  $n_D^{20}$  1.6315. In the infrared spectrum of the final product, weak absorption bands existed in the range 1000 and 1100  $\text{cm}^{-1}$ . From this, the authors assume the formation of a mixture from the hetero- and homoannular isomers. The latter seems to form in small quantities. The methiodide of the final product was produced by addition of  $\text{CH}_3\text{I}$  to Card 2/6

## Properties of phenyl ferrocene

2555  
3/020/61/139/004/016/025  
B103/B206

a solution of 3.2 g in absolute  $\text{CH}_3\text{OH}$  (or in benzene) with precipitation after 15 min by a great amount of anhydrous ether. An almost quantitative (4.3 g) amount of methiodide was produced. It is a yellow, crystalline substance with the decomposition point  $70 - 75^\circ\text{C}$ . Since in the infrared spectrum of the methiodide which was produced from the distilled final product, absorption at  $1000$  and  $1100 \text{ cm}^{-1}$  is missing, the authors conclude that the substituting groups are in various cyclopentadienyl rings. Through reduction of the methiodide by sodium amalgam, the heteroannular  $1,1\text{-methyl-phenyl ferrocene}$  was obtained (see reaction no. 1).



Card 3/6

2506  
S/020/61/139/004/016/025  
B103/B206

Properties of phenyl ferrocene

The yield was 1.8 g (71% of the theoretical one). Absorption at 1000 and 1100  $\text{cm}^{-1}$  was missing in its infrared spectrum. A free cyclopentadienyl ring can only be proved spectroscopically in the substance which was isolated from the mother liquor. The authors came to the conclusion that the heterocyclic isomer was the main component of the mixture produced by amino methylation. Therefore, this reaction mainly occurs in the free cyclopentadienyl ring. 2) To a solution of 10 g (0.018 mole) of phenyl ferrocene in 100 ml of dichloroethane, 10 g (0.060 mole) of freshly prepared dioxane sulfotrioxide was added while cooling with ice. Under the conditions of formation of ferrocene monosulfonic acid, 1,1'-phenyl ferrocene sulfonic acid was obtained.

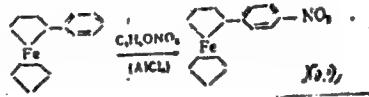
$\text{C}_6\text{H}_5\text{C}_5\text{H}_4\text{FeC}_5\text{H}_5 \xrightarrow{\text{SO}_3\text{-dioxane}} \text{C}_6\text{H}_5\text{C}_5\text{H}_4\text{FeC}_5\text{H}_4\text{SO}_3\text{H}$ . This acid was isolated as lead salt, which crystallizes with water molecules. Absorption at 1000 and 1100  $\text{cm}^{-1}$  was here also missing; the phenyl and sulfo groups are therefore in different cyclopentadienyl rings. The formation of heterocyclic sulfonic acid is also proof of a lower reactivity of the ring.

Card 4/6

S/020/61/159/004/016/025  
3103/B2C6

## Properties of phenyl ferrocene

linked with phenol. 3) The deactivating effect of the phenyl group on the ferrocenyl ring is specially marked during the Friedel-Crafts reaction. A solution of 1.4 ml of acetyl chloride and 2.66 g of  $\text{AlCl}_3$  in 10 ml of absolute ether was added in the course of 20 min to a solution of ferrocene (3.72 g) and phenyl ferrocene (5.42 g) in 100 ml of  $\text{CS}_2$ . All components were used at a molar ratio of 1:1:1:1. The authors obtained acetyl ferrocene only with a yield of 25% of the theoretical one, and a mixture of acetyl phenyl ferrocenes of only 5%, 64% of phenyl ferrocene and 30% of ferrocene being recovered unchanged. From this, the authors conclude that ferrocene may be acetylated more easily than phenyl ferrocene. 4) Phenyl ferrocene was nitrated by means of ethyl nitrate in  $\text{CS}_2$  in the presence of  $\text{AlCl}_3$ . The authors obtained a 1% yield (of the theoretical one) of p-nitro-phenyl ferrocene (see reaction no. 2).



Card 5/6

Properties of phenyl ferrocene

S/020/61/139/004/016/025  
B103/B206

The main quantity of this final product is isolated together with part of the nonreacted phenyl ferrocene in nonoxidized state (and not as a cation). The authors presume that nitration does not take place with the phenyl ferrocene cation but with phenyl ferrocene. The continuance of the ferrocenyl ring under these conditions is noticeable, probably as a consequence of a reduced capability of being oxidized to a cation as compared with ferrocene. Ferrocene itself cannot be nitrated under these conditions. Attempts of the authors to nitrate ferrocene with various other reagents (e. g., nitronium borofluoride) also failed. Only oxidation of ferrocene to the cation which is inert in reactions of the electrophilic substitution, was brought about. There are 9 references: 7 Soviet-bloc and 3 non-Soviet-bloc. One reference to English-language publications is given in the body of the abstract, the another one reads: M. Rosenblum, R. B. Woodward, J. Am. Chem. Soc., 80, 5443 (1958)).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosova)

SUBMITTED: April 19, 1961

Card 6/6

S/062/62/000/010/001/003  
B144/B186

AUTHORS: Nesmeyanov, A. H., Perevalova, E. G., and Shilovtseva, L. S.

TITLE: Aminomethylation of phenyl, tolyl, and chloro ferrocenes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 10, 1962, 1767 - 1772

TEXT: Phenyl, p-tolyl, and chloro ferrocenes were aminomethylated with N,N,N',N'-tetramethyl diamino-methane in glacial acetic acid in the presence of  $H_3PO_4$  by heating between 110 and 115°C in an  $N_2$  stream for 12 hr. The mixture was then diluted with the same amount of  $H_2O$ , the non-converted initial products were extracted with benzene, and the solution was alkalized with 40% NaOH. The end products were extracted with ether and chromatographed on  $Al_2O_3$  impregnated with formamide. The quantitative composition of N,N-dimethyl-amino-methyl ferrocenes were determined by paper chromatography.

Card 1/3

S/062/62/000/010/001/003  
B144/B186

Aminomethylation of phenyl,...

Initial ferrocene	Amino isomers			Iodine methylates	
	number, type	R <sub>f</sub> in benzene	% of total amines	m.p. <sub>δ</sub>	in IR spectrum C 1000-1100 cm <sup>-1</sup>
phenyl	1 heterocyclic	0.14	82	90-95	-
	2 homocyclic	0.38;	15	143-145	{ 1004; 1104
		0.81	3	167-170	{ 1103; 1106
p-tolyl	1 heterocyclic	0.26	83	95-99	-
	1 homocyclic	0.57	17	172-175	{ 1004, 1106
chloro	1 heterocyclic	*0.22	80	185-190	-
	1 homocyclic	*0.32	11	-163-166	{ 1006; 1104
	1 mixed		9		

\* CHCl<sub>3</sub>:C<sub>6</sub>H<sub>6</sub> = 1:1

Thus the aminomethylation was effected mainly (~5:1) in the non-substituted cyclopentane dienyl ring; this was shown also by the IR spectra of iodomethylate of the substances obtained. The spectra of heterocyclic isomers showed no 1000-1100 cm<sup>-1</sup> bands. Iodomethylates were obtained by converting amines with twice the methyl iodide excess in benzene; their compositions and gross formulas are given. An excess of 1,1'-methyl-p-tolyl ferrocene,

Card 2/3

Aminomethylation of phenyl,...

S/062/62/000/010/001/003  
B144/B186

$C_{18}H_{18}Fe$  (m.p. 93 - 95°C) was obtained from the iodomethylate of 1,1'-(N,N-dimethyl aminomethyl)-p-tolyl ferrocene by reduction with sodium amalgam. There are 2 tables.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 7, 1962

Card 3/3

S/062/62/000/011/006/021  
B101/B144

AUTHORS: Nesmeyanov, A. N., Perevalova, E. G., Shilovtseva, L. S.,  
and Tyurin, V. D.

TITLE: Ferrocenyl methylation by means of N,N-dimethyl aminomethyl ferrocene and its iodo methylate

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 11, 1962, 1997 - 2001

TEXT: The following syntheses were made with N,N-dimethyl aminomethyl ferrocene (A), trimethyl(ferrocenyl-methyl) ammonium iodide (B), and di-methyl-ethyl(ferrocenyl-methyl) ammonium bromide (C):- (1) Reaction of B with  $\text{Na}_2\text{S} \cdot 10\text{H}_2\text{O}$  on a boiling water bath and extraction with ether produced di-(ferrocenyl-methyl) sulfide, yield 54%, m.p. 107 - 108°C (with decomposition). The IR spectrum contained absorption bands at 1000 and  $1104 \text{ cm}^{-1}$ . (2) Di-(ferrocenyl methyl) disulfide, yield 33%, m.p. 125-127°C (with decomposition), was obtained from B and NaSH, the latter being produced by bubbling  $\text{H}_2\text{S}$  through NaOH solution. (3) The synthesis of ferro-

Card 1/4

s/062/62/000/011/006/021  
B101/B144

Ferrocenyl methylation by means of...

Cenyl methyl acetate was made in three ways: (a) Reaction of B with glacial acetic acid at 90 - 95°C in N<sub>2</sub> atmosphere, yield 25%, m.p. 74-76°C, IR absorption bands at 997, 1104, and 1740 cm<sup>-1</sup>. A compound soluble in benzene, (gross formula C<sub>12</sub>H<sub>12</sub>Fe, m.p. 115-135°C) formed at 110-150°C; it was not further investigated. (b) Reaction of C with sodium acetate at 150-155°C in vacuum (7 mm Hg), yield 39%, m.p. 75-76°C. (c) Reaction of A with acetic anhydride, yield 89%. The compound obtained by (c) was, as to m.p. and IR spectrum, identical with the compounds obtained by reactions (a) and (b). (4) Reaction of A with methyl benzoate in N<sub>2</sub> atmosphere at 130 - 135°C, and extraction with benzene, produced ferrocenyl methyl benzoate, yield 50%, m.p. 132-133°C, IR bands at 1003, 1098, 1700 cm<sup>-1</sup>. (5) Reaction of A with methyl anthranilate produced ferrocenyl methyl anthranilate, yield 46%, m.p. 123-124°C, IR bands at 996, 1102, 1686 cm<sup>-1</sup>. (6) Heating of B with ethyl acetate at 120-125°C produced, instead of the expected ferrocenyl methyl acetate, ferrocenyl carbinol ethyl ether, yield 42%, b.p. 68-70°C/0.3 mm Hg, n<sub>D</sub><sup>20</sup> 1.5840. The IR bands at 1002, 1106 cm<sup>-1</sup>

Card 2/4

Ferrocenyl methylation by means of...

S/062/62/000/011/006/021  
B101/B144

proved the existence of a nonsubstituted cyclopentadienyl ring. Bands of an ester carbonyl group were not observed. (7) B with butyl acetate produced ferrocenyl carbinol butyl ether, yield 35%, m.p. 31.5-32.5°C, b.p. 105-106°C/2 mm Hg,  $n_{D}^{20}$  1.5695. IR bands at 1004 and 1104  $\text{cm}^{-1}$ . (8) Heating of B with piperidine at 110°C produced N-(ferrocenyl-methyl) piperidine, yield 94%, m.p. 84.5 - 85.5°C, IR bands at 1002, 1103, 1303  $\text{cm}^{-1}$ ; Reaction of A with piperidine did not lead to a substitution of the dimethyl amino radical. (9) N-(ferrocenyl-methyl) morpholine was obtained from B and morpholine at 120-130°C, yield 95%, m.p. 74-75°C, IR bands at 1006, 1104  $\text{cm}^{-1}$ . (10) N-(ferrocenyl-methyl) aniline was obtained from B and aniline in boiling aqueous solution, yield 75%, m.p. 84-84.5°C, IR bands at 1000, 1106, 1602, 1552-1566, 3930  $\text{cm}^{-1}$ . (11) N-(ferrocenyl-methyl) phthalimide was obtained from B and potassium phthalimide in dimethyl formamide solution at 130-140°C, yield 97%, m.p. 209-210°C (with decomposition), IR bands at 1000, 1102, 1706, 1758  $\text{cm}^{-1}$ . (12) Ferrocenyl methyl amine was obtained from N-(ferrocenyl-methyl) phthalimide and hydrazine hydrate heated at 80-90°C in  $N_2$  atmosphere, by precipitation with NaOH, b.p.

Card 3/4

Ferrocenyl methylation by means of...

S/062/62/000/011/006/021  
B101/B144

108-110°C/0.3 mm Hg,  $n_D^{20}$  1.6310, IR bands at 1002, 1106, 3288, 3368  $\text{cm}^{-1}$ .  
This compound decomposes in air. Bubbling of HCl through its benzene solution yielded ferrocenyl methyl amine hydrochloride, decomposition temperature 233-235°C.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosova)

SUBMITTED: April 2, 1962

Card 4/4

Naibayev, N. A.; Vol'kenau, N. A.; Shilovtseva, L. B.

217- Exchange of the ligand in replaced ferrocenes

Kh. Nauk., v. 16, no. 165, 1927-1930

Chemical Abstracts

The exchange of the ligand in substituted ferrocenes.

have a strong influence on the exchange of ligands. In the reaction with mesitylene, the rate of exchange of the ligand in substituted ferrocenes is proportional to the concentration of the substituted ferrocene and the concentration of mesitylene.

cene did not react with mesitylene, and diegomerocene formed only  
Card 1/2

2-41140-25

AMERICAN REF ID: AP5007661

ethylcyclopentadienyl-mesitylene iron. Interaction between acetyl-ferrocene and  
mesitylene. Preparation of acetyl-cyclopentadienyl- and cyclopentadienyl-  
mesitylene. Preparation of ferrocene-mesitylene. Preparation of ferrocene-  
mesitylene. Preparation of ferrocene-mesitylene.

1. 1970 R Institut elementorganicheskikh soedinenii, Akademii nauk SSSR  
2. 1970 R Institut elementorganicheskikh soedinenii, Akademii nauk SSSR

3. 1970 R Institute of Element Organic Compounds, Academy of Sciences, USSR

4. 1970 R Institute of Element Organic Compounds, Academy of Sciences, USSR

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549510004-2  
Card 2/2

MESETYANOV, A.N., and Likh; D.YA. KAM'YANOV, N.I.; KHOMOVICH, I.I.

Exchange of ligands in substituted ferrocenes. Dokl. AN SSSR  
160 no.6:1327-1330 F '65.

(KIFI 13:2)

I. Institut elementoorganicheskikh soyedinenii AN SSSR.

ACC NR: AP7013160

SOURCE CODE: UR/0062/66/000 012/2239.2240

AUTHOR: Shilovtsova, L. S.; Perevalova, E.; Nefedov, V. A.; Nesmeyanov, A. N.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Aminomethylation of ethylferrocene

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1966, 2239-2240

TOPIC TAGS: methylation, ferrocene

SUB CODE: 07

ABSTRACT: The dimethylaminomethylation of ethylferrocene was conducted with  $N,N,N',N'$ -tetramethyldiaminomethane. 1,2-,1,3-, and 1,1'-( $N,N$ -dimethylaminomethyl)ethylferrocenes (total yield approximately 70% of the theoretical) and 1,1'-di( $N,N$ -dimethylaminomethyl)-2-ethylferrocene and 1,1'-di( $N,N$ -dimethylaminomethyl)-3-ethylferrocene (total yield about 7%) were isolated from the reaction products. The products were characterized, and their structures studied according to their absorption capacity and infrared spectra. The yield of the homoannular isomers was approximately four times as great as that of the heteroannular isomers. The ratio of 1,3-isomers to 1,2-isomers was approximately 3:1, both for the mono-and for the diamines.  $R_f$  values for the isomers obtained

Card 1/2

UDC: 542.958.3 + 547.1'13 + 546.72

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"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510004-2

ACC NR: AP7013160

are cited for chromatography on alumina impregnated with formamide.  
Orig. art. has: 1 table. [JPRS: 40,422]

Card 2/2

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510004-2"

SHILOZBERG, Yu.A., inzhener.

Some problems in general automation of industrial machinery.  
Prom.energ. 12 no.9:1-3 S '57. (MIRA 10:10)  
(Automation)

BLANTER, M.S.; FINKEL'SHTEYN, B.N.; SHIL'SHTEYN, S.Sh.

Thermodynamics of binary alloys. Izv.vys.ucheb.zav.; chern.  
met. no.3:10-12 '60. (MIRA 13:4)

1. Moskovskiy institut stali.  
(Alloys--Thermal properties)

86235

24.7.60 1043, 1035, 1142

S/032/60/026/008/035/046/XX  
B020/B052

AUTHORS: Begorodskiy, O. V. and Shil'shteyn, S. Sh.

TITLE: Goniometer Head for X-Ray Structural Analysis by a  
Double-crystal Spectrometer

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 8,  
pp. 1012 - 1013

TEXT: The double-crystal X-ray spectrometer detects errors in the structure of single- and polycrystal samples, exactly determines the stress distribution in wide single-crystal regions, and the lattice periods of single- and polycrystal materials. The device type YPC-50N (URS-50I) used at present does not permit sufficiently rapid and exact studies. The goniometer head designed by the author (Fig.1) simplifies the fixation of the objects to be studied in a position which corresponds to the reflection of X-rays from every crystallographic plane. Thus, an accuracy of up to 0.5" is attained. The double-crystal spectrometer is attached to the device URS-50I. The first crystal is put into the clamp

Card 1/2

Goniometer Head for X-Ray Structural Analysis by a Double-crystal Spectrometer      86235  
S/032/60/026/008/035/046/XX  
B020/B052

of the monochromator, the second one into the goniometer head. The widths of the rotation curves of a natural calcite crystal (2:1) and a germanium single crystal (111) were determined by the above goniometer head attached to the device URS-50I (Fig.2). The theoretical width of reflection of an ideal calcite crystal is 5.8". In the given case, a width of 11" was obtained due to the insufficient quality of the crystal. The experiments showed that the band width of a germanium crystal with a dislocation density of  $10^{-2} \text{ cm}^{-2}$  is 20", and of a crystal with a dislocation density of  $10^4 \text{ cm}^{-2}$  it is 40". The rotation curves thus have two maxima which is due to the presence of blocks in the germanium single crystal, with disorientation angles of approximately 20". The theoretical width of the rotation curve of the ideal germanium crystal is 15.8". There are 2 figures and 1 non-Soviet reference: 1 German.

Card 2/2

83560

9.4340

S/020/60/134/001/012/021  
B004/B060

AUTHORS: Bogorodskiy, O. V., Umanskiy, Ya. S., Shil'shteyn, S. Sh.

TITLE: On the Nature of the Mosaic Structure of Single Crystals  
of Germanium and Silicon

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 1,  
pp. 114 - 116

TEXT: The authors wanted to check the dislocation character of the mosaic structure (Fig. 1), and studied single crystals of germanium and silicon that were drawn from the melt along the (111)-axis. The samples used were 2-3 mm thick foils cut perpendicular to the (111)-axis. It was established by etching that almost all of the dislocations exhibited the Burgers vector  $a/2$  (110). In some cases, the authors observed lines which corresponded to small-angle boundaries. The density of surface dislocations was  $10^2 - 10^6 \text{ cm}^{-2}$  for germanium,  $10^2 - 10^3 \text{ cm}^{-2}$  for silicon. The principle of the X-ray analysis is described (Fig. 2). The monochromatic X-ray beam is reflected from the crystal I, and hits on crystal II which is rotated around small angles. The authors used the

Card 1/3

83560

On the Nature of the Mosaic Structure of  
Single Crystals of Germanium and Silicon

S/020/60/134/001/012/021  
B004/B060

YPC-50M (URS-50I) apparatus with Geiger counter. The curve of the intensity of double reflection of I as a function of the angle of rotation  $\beta$  is defined as rotation curve. The authors constructed a special goniometer head which allowed rotations around small angles with an accuracy of 0.5". The rotation curves obtained experimentally are shown in Fig.3, the data are given in Table 1. The distances between the maxima equal the disorientation angle of the crystal blocks. Experimental data show that the Ge single crystals have a mosaic structure with all dislocation densities, while the disorientation angles of the blocks change little, although the dislocation densities differ by four orders of magnitude. This cannot be explained by the Burgers model. In silicon, the blocks are considerably smaller, which likewise contradicts the Burgers model, since the lattice constants of Ge and Si are little different. The germanium crystals with small-angle boundary showed fragment structure. The authors arrived at the conclusion that the block boundaries in Ge and Si may be connected with dislocations, but not according to the mechanism of the small-angle boundary. Also structural defects might play a role here. The interfaces between the fragments, on the other hand, consist of dislocations in agreement with the

X

Card 2/3

FOMIN, V.G.; OVODOVA, A.V.; POGORODSKIY, O.V.; SHIL'SHTEYN, S.Sh.

Some features of the crystallization of germanium-silicon alloys  
in zone melting. Kristallografiia 6 no.2:256-260 Mr-Ap '61.  
(MIRA 14:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proektnyy institut  
redkometallicheskoy promyshlennosti.  
(Germanium-silicon alloys) (Dislocations in crystals)  
(Melting)

REF ID: A65117 (part) UFR(s)/AFWU/ASD(a)-5/AS(mp)-2/ESD(c)/ESD(ga)/

ACCESSION NR: AP4046049

S/0070/64/009/005/0727/0729

AUTHOR: Shil'shteyn, S. Sh.

TITLE: Investigation of the structural perfection of germanium  
single crystals

Veststallografiya, v. 9, no. 5, 1964, 727-729

D.P.I. TAGS: germanium, single crystal, crystal lattice structure,  
imperfection, x-ray diffraction, x-ray scattering, disloca-  
tion density, reflection coefficient

ABSTRACT: The perfection of the germanium crystal structure was in-  
vestigated with a two-crystal x-ray spectrometer based on the URS-501  
installation. The principles of the method are described in detail  
in standard books (R. W. James, Optical Principles of the Diffraction  
of X-rays, Bell, London, 1948; A. H. Compton and S. K. Allison, X-  
rays in Theory and Experiment, Van Nostrand, New York, 1935). The

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ACCESSION NR: AP4046049

and the procedure for plotting the oscillation curve are given. Two or three oscillation curves were taken for each sample at points on each sample. The width of the oscillation curves at half the height and the integrated reflection coefficients were measured. The test results indicate that germanium crystals with dislocation density from zero to  $10^4 \text{ cm}^{-2}$  scatter x-rays in satisfactory agreement with the dynamic scattering theory of Darwin and Brinck. When the dislocation density reaches  $10^5 \text{ cm}^{-2}$ , considerable broadening of the oscillation curves is observed, and the integral reflection coefficient increases. It is concluded that at the increased dislocation density the germanium crystals behave in some respect as if they had an appreciable mosaic structure. Orig. art. has: 1 formula and 1 table.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektno-razrabotknyy institut splavov i obrabotki tsvetnykh metallov (State Scientific Research Institute for Alloys and the Processing of Nonferrous

B-127455

ACCESSION NR: AP4046049

Metals)

SUBMITTED: 06Feb64

ENCL: 00

SUB CODE: SS

NR REF SOV: 003

OTHER: 009

3/3

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510004-2

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DATE 08/23/2000 BY SP2 JASPER T. HARRIS  
TELETYPE NO. 202-5200, 1965

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510004-2"

SETRUBEVICH, R.I.; GOLENTINSKAYA, Y.G.; SHIL'SHTEYN, S.Sh.

Various types of etch pits in single crystals of  $\text{Li}_2\text{Zn}_3$ -type  
compounds. Trudy Gipotsvetotekhnika no.24:38-43 '65.  
(MIRA 18:11)

VITI RAZD. 777157157-1/EMA(e) LT(e) SC 26

REF ID: A98147

UR/0070/65/010/004/0562/0565

AUTHORS: Petrusevich, R. L. <sup>44.6</sup> Shill'shteyn, S. Sh.

43

7

ABSTRACT: Investigation of the perfection of gallium arsenide single crystals

27 27

44.6

SOURCE: Kristallografiya, v. 10, no. 4, 1965, 562-565

ERIC TAGS: single crystal growing, crystal imperfection, gallium arsenide lattice parameter, crystal dislocation

ABSTRACT: The perfection of GaAs single crystals was investigated with a monochromator spectrometer using copper K $\alpha$  radiation. A germanium crystal served as monochromator. In view of the closeness of the lattice parameters of GaAs and Ge the broadening of the reflection due to dispersion did not exceed the limits of the experimental accuracy in the (1, -1) and 3, -3' positions. The 1--2 mm thick crystals were cut from crystals grown by the Bridgman or the Czochralski

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L 64793-65

ACCESSION NR: AP5018727

method along the (111) plane, and etched to exhibit dislocations whose density was identified with the etch-pit density. Comparison of etched and chemically polished crystals indicated that the etch pits had no effect on the shape of the reflection nor on the integrated reflection coefficient. For small dislocation densities the reflection coefficient was very approached the theoretical values for a perfect gallium arsenide crystal. Broadening of the reflection curves of the (111) and (333) reflections observed on some portions of the crystal differed little, indicating that the main reason for the broadening was the distribution caused by the mosaic structure. At a dislocation density of  $5 \times 10^4 \text{ cm}^{-2}$  the reflection curves were somewhat broader than the theoretical widths but the integrated reflection coefficients are small, increasing approximately at a density of  $1 \times 10^5 \text{ cm}^{-2}$ , especially for the (333). It is known that were the low values of the reflection coefficient due to scattering. Possibly other defects may increase the reflection coefficient. No sys-

L 6L793-65

ACCESSION NR: AP5018727

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... differences in the perfection of the A and B planes of GaAs  
... orig. art. has: 1 table.

ISSUER: Gosudarstvennyy nauchno-issledovatel'skiy i proyektornyy  
... i obrabotky tsvernykh metallov (State Scientific  
... and Processing Institute of Alloys and Processing of Nonferrous

REF ID: 2306164

ENC'D: 00

SUB CODE: SS

REF ID: 000

OTHER: 006

Card 3/3

ACCESSION NO: AP5018732

UR/0070/65/010/004/0580/0582

548.4

AUTHORS: Shil'steyn, S.Sh.; Simonova, T.I.

81  
27  
6

TITLE: The problem of the nature of the nondislocation etch pits

SOURCE: Kristallografiya, v. 10, no. 4, 1965, 580-582

TOPIC TAGS: germanium, etched crystal

X, Y, C

ABSTRACT: New data were obtained on the nature of the "little" etch pits in germanium. The investigation showed that these etch pits appear gradually over the etching time with a solution of 12% FeCl<sub>3</sub> in 60 ml. water is increased to 5 or 6 min. If the germanium is allowed to boil for several minutes in the same solution, the etch pits appear. In addition, the crystals are etched more rapidly before the etching. The

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ACCESSION NR: AP5018732

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"little" pits appear extremely elongated if the orientation is 4--5° off {111} and do not appear for larger deviations. Unlike dislocation pits, the "little" pits reach a maximum with increasing etching time and then disappear. This fact, together with comparison of the ~~lattice~~ <sup>lattice</sup> free germanium and comparison of pit densities before and after quenching and annealing, led to the conclusion that the "little" pits are due to accumulations of point defects.  
Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy  
institut po obrabotke metallicheskikh metallov (State Scientific-  
Research Institute for Processing of Metalloidal Metals)

NR REF. SER.: OTHER: 006

SUB CODE: SG

Form 2/2

L 18847-66 EWT(m)/T/EWP(t) IJP(c) JD  
ACC NR: AT6006471 SOURCE CODE: UR/2680/65/000/024/0038/0043

AUTHOR: Petrusevich, R. P.; Sollertinskaya, Ye. S.; Shil'steyn, S. Sh. 43 B+1

ORG: State Scientific-Research Planning Institute of Alloys and the Processing of Nonferrous Metals (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov)

TITLE: Various kinds of etch pitting in single crystal compounds of the type A<sub>III</sub>B<sub>V</sub>

SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallovedeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of nonferrous metals and alloys), 38-43

TOPIC TAGS: gallium arsenide, indium antimonide, single crystal, etched crystal, dislocation effect, defect structure, metallographic examination, semiconducting material

ABSTRACT: Etch pitting was studied in single crystals of GaAs and InSb. The formation of small pits on (111) surfaces and their redistribution upon heating were

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L 18847-66  
ACC NR: AT6006471

dissociated from the larger dislocation etch pits which generally form after chemical polishing. The etching conditions for obtaining the small pits were as follows: GaAs--the polishing solution was 1 part HF, 3 parts HNO<sub>3</sub>, 2 parts H<sub>2</sub>O (polished at room temperature for 2 to 3 min) and the etchant for small pits was 1 part HNO<sub>3</sub>, 3 parts H<sub>2</sub>O, 0.5% AgNO<sub>3</sub> (at boiling point 1.5 to 2 min); InSb--1 part HF, 2 parts HNO<sub>3</sub> (polish at room temperature for 30 sec) and 1 part HF, 1 part H<sub>2</sub>O<sub>2</sub>, 8 parts H<sub>2</sub>O, 0.5% AgNO<sub>3</sub> (etch 3 min at room temperature). Micrographs (200 and 440x) showed that the small pits became larger and formed terrace-like steps and subsequently became flat and eventually disappeared. After repolishing and etching, they reappeared in about the same number indicating that they are caused by defects extending deep into the crystals. Some crystals were heat treated at 1100 and 400°C (60 hr), cooled slowly (1 day), repolished and etched. Small pitting reappeared except for randomly depleted areas. Within the depleted zones, the larger dislocation etch pits could still be observed. These data indicated that the small pits were not caused by dislocations but by clusters of point defects. Only the point defects could have been affected by the heat treatment. Orig. art. has: 3 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 003/ OTH REF: 007

Card 2/2 vmb

SHIL'T, B.A.; LYUBAN, A.P.; MANCHINSKIY, V.G.

Rate of interaction among the hard components of blast furnace  
slags. Stal' 16 no.4:303-307 Ap '55. (MIRA 9:?)

1.Leningradskiy politekhnicheskiy institut.  
(Blast furnaces) (Slag)

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510004-2

..... These codes begin to read: many items  
serve to solid state. This may be in the reduction of a  
portion of the original quantity, or may serve to solidify  
the original quantity of the primary sites

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510004-2"

ACCESSION NR: AP3007869

S/0197/63/000/008/0051/0062

AUTHORS: Kunin, P.; Taksar, I.; Shiltars, M.; Shilter, E.

TITLE: On energy spectra and oscillator forces in single valence atoms

SOURCE: AN LatSSR. Izvestiya, no. 8, 1963, 57-62

TOPIC TAGS: Schrödinger equation, single valence atom, potential field, neutral atom, single charge ion, lithium atom, sodium atom, potassium atom

ABSTRACT: The Schrödinger equation has been solved for single-valence atoms in two effective potential fields given by

$$U = -\frac{B}{r} + \frac{s(s+1)}{2r^2}, \quad (1)$$

where  $B = 1$  for neutral atoms,  $B = 2$  for single-charge ions, etc., and by a second, more complicated, one given by

$$U = \frac{-2r^2 - 2ar + s(s+1)b}{2r^2(r+b)} \quad (2)$$

Card 1/2

ACCESSION NR: AP3007869

A closed form solution is obtained for (1) and a three-term recurrence formula, represented by a series, for (2). Detailed numerical computations on an electronic computer are obtained for lithium, sodium, and potassium atoms and in isoelectron series of lithium. The various parameters appearing in the equations for various energy levels are determined from experimental data. All computations were performed on the BESM-2 VTs computer at Latviyskiy gosudarstvennogo universitet Im. P. Stuchki (Latvian State University). Orig. art. has: 12 formulas and 1 table.

ASSOCIATION: none

SUBMITTED: 26Dec62

DATE ACQ: 21Oct63

ENCL: CO

SUB CODE: PH

NO REF Sov: 003

OTHER: 000

Card 2/2

KUNIN, P.; TAKSAR, I.; SHILTER, E. [Silters, E.]

Effective potential method for determining the sodium  
atom. Izv. AN Latv. SSR no.10:49-53 '63. (MIRA 17:1)

ACCESSION NR: AP3007869

S/0197/63/000/008/0057/0062

AUTHORS: Kunin, P.; Taksar, I.; Shiltore, M.; Shilter, E.

TITLE: On energy spectra and oscillator forces in single valence atoms

SOURCE: AN LatSSR. Izvestiya, no. 8, 1963, 57-62

TOPIC TAGS: Schrödinger equation, single valence atom, potential field, neutral atom, single charge ion, lithium atom, sodium atom, potassium atom

ABSTRACT: The Schrödinger equation has been solved for single-valence atoms in two effective potential fields given by

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where  $B = 1$  for neutral atoms,  $B = 2$  for single-charge ions, etc., and by a second, more complicated, one given by

$$U = \frac{-2r^2 - 2ar + s(s+1)b}{2r^2(r+b)}, \quad (2)$$

Card 1/2

ACCESSION NR: AP3007869

A closed form solution is obtained for (1) and a three-term recurrence formula, represented by a series, for (2). Detailed numerical computations on an electronic computer are obtained for lithium, sodium, and potassium atoms and in isoelectron series of lithium. The various parameters appearing in the equations for various energy levels are determined from experimental data. All computations were performed on the BESM-2 VTs computer at Latviyskiy gosudarstvennogo universitet Im. P. Stuchki (Latvian State University). Orig. art. has: 12 formulas and 1 table.

ASSOCIATION: none

SUBMITTED: 26Dec62

DATE ACQ: 21Oct63

ENCL: 00

SUB CODE: PH

NO REF Sov: 003

OTHER: 000

Card 2/2

POPOVKINA, Ritta Aleksandrovna; SHILTOVA, Alla Petrovna; LIVSHITS, Ya. L.,  
red.; ATROSHCHENKO, L.Ye., tekhn. red.

[Cambodia] Kambodzha. Moskva, Izd-vo "Znanie," 1958. 31 p.  
(Vsesoiuznoe obshchestvo po rasprostraneniu politicheskikh i  
nauchnykh znanii. Ser.7, no.17). (MIRA 11:9)  
(Cambodia)

GIEBOVA, I.I. [translator]; ZELENTSOV, V.A. [translator]; IVANOV, V.V.  
[translator]; MORDVINOV, V.F. [translator]; NIKULIN, N.I.  
[translator]; SHILTOVA, A.P. [translator]; TRIPONOV, V., red.;  
DANILINA, A., tekhn. red.

[Progress in the restoration of the national economy of the  
Democratic Republic of Vietnam, 1955-1956] Uspekhi vosstanovleniya  
narodnogo khoziaistva Demokraticeskoi Respubliki V'etnam  
(1955-1956 gg). Moskva, Gos. izd-vo polit. lit-ry, 1958. 271 p.  
(MIRA 11:5)

(Vietnam, North--Economic conditions)

GLEBOVA, Iveta Ivanovna; ZELENTSOV, Vsevolod Alekseyevich; IVANOV,  
Vladimir Vladimirovich; NIKULIN, Nikoley Ivanovich; SHILTOVA,  
Alla Petrovna; OSHANIN, I.M., prof., red.; VU DANG AT, red.;  
SPEKTOROV, L.D., red.; ZELENTSOVA, Ye.B., red.; SOBOLEVSKAYA,  
E.S., tekhn.red.

[Vietnamese-Russian dictionary] V'ietnamsko-russkii slovar'.  
Sost. I.I.Glebova i dr. Pod red. I.M.Oshanina i Vu Dang Ata.  
Okolo 36000 slov. Moskva, Gos.izd-vo inostr.i natsional'nykh  
slovarei, 1961. 616 p. (MIRA 14:4)

1. Vostochnaya redaktsiya Gosudarstvennogo izdatel'stva ino-  
strannykh i natsional'nykh slovarey (for Ye.B.Zelentsova,  
Spektorov).

(Annamese language--Dictionaries--Russian)

SHIPILOV, I.P., polkovnik; SHIL'TSEV, A.N., polkovnik, redakteur; KONOVALOVA, YE.K., tekhnicheskiy redakteur.

[Our country's aviation; a collection of articles from the periodical "Vestnik vozduzhnogo flota" [Review of the Air Force], Aviatsiya na-shel rodiny; sbornik statei zhurnala "Vestnik vozduzhnogo flota". Moskva, Voen.izd-vo Ministerstva obor. SSSR, 1955. 565 p. (MIRA 9:6) (Aeronautics--History)